

Notice of Allowability

Application No.

09/734,403

Examiner

Aravind K. Moorthy

Applicant(s)

BENFIELD ET AL.

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/14/07.
2. ☒ The allowed claim(s) is/are 1-28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date see attachment.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. This is in response to the appeal brief filed on 14 March 2007.
2. Claims 1-28 are pending in the application.
3. Claims 1-28 have been allowed.

Response to Arguments

4. The examiner withdraws the previous rejection. The applicant's arguments and the examiner's amendment puts the case in condition for allowance.

EXAMINER'S AMENDMENT

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kelvin M. Vivian on 5 July 2007.

The application has been amended as follows:

Claim 1 (Currently Amended) A method for integrating encryption functionality into a database system, the method comprising:

(a) providing at least two functions to support data encryption in a database system; and

(b) ~~utilizing~~ invoking the at least two functions within structured query language statements.

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Claim 15 (Currently Amended) A computer readable medium containing program instructions for integrating encryption functionality into a database system, the program instructions comprising:

(a) providing at least two functions to support data encryption in a database system; and

(b) ~~utilizing~~ invoking the at least two functions within structured query language statements.

Claim 21 (Currently Amended) A method for integrating encryption functionality into a database system, the method comprising:

defining a function to support encryption of data in a database system, the encryption of data being based on a user-specified password, the function having a function name; and

~~utilizing~~ invoking the function within a structured query language statement to control access to the data in the database system including encrypting the data within the database system with the user-specified password,

wherein the structured query language statement includes the function name and the user-specified password.

Claim 25 (Currently Amended) A computer readable medium containing program instructions for integrating encryption functionality into a database system, the program instructions comprising:

defining a function to support encryption of data in a database system, the encryption of data being based on a user-specified password, the function having a function name; and

~~utilizing~~ invoking the function within a structured query language statement to control access to the data in the database system including encrypting the data within the database system with the user-specified password,

wherein the structured query language statement includes the function name and the user-specified password.

Allowable Subject Matter

6. Claims 1-28 are allowed.

The following is an examiner's statement of reasons for allowance:

The current application is directed towards aspects for integrating encryption functionality into a database system. The aspects include providing at least two functions to support data encryption in a database system. The at least two functions are utilized within structured query language statements to preserve confidentiality of user-specified data in the database system.

Accordingly, independent claim 1 recites a method for integrating encryption functionality into a database system. The method includes providing at least two functions to support data encryption in a database system. The method further includes utilizing the at least two functions within structured query language statements.

Independent claim 8 recites a system for integrating encryption functionality into a database system. The system includes at least one computer processing device. The system further

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includes a database management system installed on the at least one computer processing device, in which the database management system supports utilization of at least two functions for data encryption. The at least two functions for data encryption are invoked within structured query language statements.

Independent claim 15 recites a computer readable medium containing program instructions for integrating encryption functionality into a database system. The computer readable medium contains program instructions for providing at least two functions to support data encryption in a database system. The computer readable medium further contains program instructions for utilizing the at least two functions within structured query language statements.

Independent claim 21 recites a method for integrating encryption functionality into a database system. The method includes defining a function to support encryption of data in a database system, in which the encryption of data is based on a user-specified password, and the function has a function name. The method further includes utilizing the function within a structured query language statement to control access to the data in the database system including encrypting the data within the database system with the user-specified password. The structured query language statement includes the function name and the user-specified password.

Independent claim 25 recites a computer readable medium containing program instructions for integrating encryption functionality into a database system. The computer readable medium contains program instructions for defining a function to support encryption of data in a database system, in which the encryption of data is based on a user-specified password, and the function has a function name. The computer readable medium further contains program instructions for utilizing the function within a structured query language statement to control access to the data in

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the database system including encrypting the data within the database system with the user-specified password. The structured query language statement includes the function name and the user-specified password.

The closest prior art to the current application was Sato et al U.S. Patent No. 7,093,137 B1 (hereinafter Sato). Sato is directed towards a database, a frequently retrieved column is encrypted using a common key, and other columns are encrypted using a specific row key. Thus, a retrieving process can be performed at a high speed, and the security can be improved. Then, the row and column of the database are encrypted by assuming the plaintext to be encrypted as a bit string, and performing a binary operation with a random bit string. A random bit string is obtained by sequentially generating multidimensional vectors using a nonlinear function by defining a predetermined bit length as 1 word and a plurality of words as components of the multidimensional vector.

However, there are differences between Sato and the current application.

Sato fails to disclose utilizing a function to support data encryption in a database system within a structured query language (SQL) statement. While Sato generally discloses a program that can encrypt data within a database, Sato fails to disclose that the program utilizes structured query language (SQL) statements, nor is it inherent that Sato's program utilizes structured query language statements to encrypt data in a database. Moreover, Sato fails in general to disclose utilizing SQL — or SQL statements — with respect to database management. Thus, Sato cannot disclose utilizing at least two functions (that support data encryption) within a structured query language statement. Independent claims 8 and 15 each incorporates limitations similar to those of claim 1. Claim 21 recites a method for integrating encryption functionality into a database

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system. In particular, the method includes defining a function to support encryption of data in a database system, in which the encryption of data is based on a user-specified password, and the function has a function name. The method further includes utilizing the function within a structured query language statement, in which the structured query language statement includes the function name and the user-specified password. Sato fails to disclose utilizing a function (to support data encryption) within a structured query language statement — or any other language statement — in which the structured query language statement includes the function name and the user-specified password. Sato generally discloses a database 41 that stores non-public information and public information. And while Sato discloses that the public information (stored in the database 41) includes a password, Sato clearly fails to disclose that the password is utilized within a structure query language statement. Claim 21 is, therefore, allowable over Sato for these reasons in addition to those reasons discussed above in connection with claim 1.

Claims 22-23, and 25-27 each incorporates limitations similar to those of claim 21.

Any claims not directly addressed are allowed on the virtue of their dependency.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

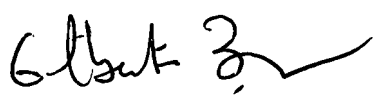
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K. Moorthy whose telephone number is 571-272-3793. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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July 5, 2007


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